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United States Patent [19]**Simpson et al.**[11] **Patent Number:** **5,462,529**[45] **Date of Patent:** **Oct. 31, 1995**[54] **ADJUSTABLE TREATMENT CHAMBER CATHETER**[75] **Inventors:** **John B. Simpson**, Woodside; **Scott C. Anderson**, Mountain View, both of Calif.[73] **Assignee:** **Technology Development Center**, Redwood City, Calif.[21] **Appl. No.:** **128,948**[22] **Filed:** **Sep. 29, 1993**[51] **Int. Cl.⁶** **A61M 25/00**[52] **U.S. Cl.** **604/101; 604/96; 604/164**[58] **Field of Search** **604/101, 102, 604/96, 19, 22, 27, 43, 35, 49; 606/192, 194, 167, 170, 180**[56] **References Cited****U.S. PATENT DOCUMENTS**

550,238 11/1895 Allen, Jr. .
 4,573,966 3/1986 Weiki et al. .
 4,655,746 4/1987 Daniels et al. .
 4,771,777 9/1988 Horzewski et al. .
 4,832,028 5/1989 Patel .
 4,883,459 11/1989 Calderon .
 4,911,163 3/1990 Fina .

5,059,178 10/1991 Ya .
 5,090,960 2/1992 Don Michael .
 5,102,390 4/1992 Crittenden et al. .
 5,135,484 8/1992 Wright .
 5,176,693 1/1993 Pannek, Jr. .
 5,181,920 1/1993 Mueller et al. .
 5,281,200 1/1994 Corso, Jr. et al. .
 5,318,576 6/1994 Plassche, Jr. et al. .

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Disclosed herein is a catheter device for treatment of disease in biological conduits. The device has inner and outer coaxial catheter members, each having an inflatable balloon attached near its distal end. When the balloons are inflated, a sealed treatment chamber is created between the balloons. The length of the treatment chamber is adjustable by sliding the coaxial catheter members with respect to each other to obtain a desired separation between the attached balloons before inflation. Biological debris is trapped within the chamber and removed by infusion and aspiration of a flushing fluid, reducing the risk of myocardial infarction. Adjunctive treatment devices can be inserted into the sealed treatment chamber through a lumen of the outer coaxial member.

21 Claims, 3 Drawing Sheets